

Facility Specific Chloride Variance Data Sheet

Directions: Please complete this form electronically. Record information in the space provided. Select checkboxes by double clicking on them. Do not delete or alter any fields. For citations, include page number and section if applicable. Please ensure that all data requested are included and as complete as possible. Attach additional sheets if needed.

Section I: General Information

A. Name of Permittee: Village of Sussex
B. Facility Name: Sussex Wastewater Treatment Facility
C. Submitted by: Wisconsin Department of Natural Resources
D. State: Wisconsin **Substance:** Chloride **Date completed:** 8-14-2019
E. Permit #: WI-0020559-08-0 **WQSTS #:** (EPA USE ONLY)
F. Duration of Variance **Start Date:** 1-1-2020 **End Date:** 12-31-2024
G. Date of Variance Application: 4-4-2019
H. Is this permit a: ☐ First time submittal for variance
☒ Renewal of a previous submittal for variance (Complete Section IX)

I. Description of proposed variance: Variance for chloride from the water quality based effluent limit of 396 mg/L, expressed as a weekly average limit, to a seasonal weekly average interim limit of 511 mg/L (December-April) and 500 mg/L (May- November). The permit will include requirements to implement source reduction measures and an effluent target value of 460 mg/L. A review of effluent data from October 2014 and June 2019 indicated that the facility exceeded the previous permit's chloride limit 17 times during the previous permit term. A Notice of Noncompliance was issued by the Department on February 20, 2015 that urged the facility to conduct a thorough investigation and identification of the cause of elevation chloride. The facility responded to the Department in March 2015 and continues to work towards compliance and prevention of exceedances.

J. List of all who assisted in the compilation of data for this form

Name	Email	Phone	Contribution
Lisa Creegan	Lisa.Creegan@wi.gov	414-263-8701	Permit Drafter
Nick Lent	Nicholas.Lent@wi.gov	414-263-8623	Compliance Staff
Nicole Krueger	Nicole.Krueger@wi.gov	414 263-8650	Limit Calculator (Parts II D-H and J)

Section II: Criteria and Variance Information

A. Water Quality Standard from which variance is sought: Chloride
B. List other criteria likely to be affected by variance: No other variances were requested
C. Source of Substance: Primarily from residential home water softeners and winter road salt application, plus minor contributions from industrial processes and industrial water softening needs.
D. Ambient Substance Concentration: 194 mg/L ☒ Measured ☐ Estimated
☐ Default ☐ Unknown
E. If measured or estimated, what was the basis? Include citation. Geomean of 12 samples from Spring Creek (also known as Sussex Creek) from 03/09/2015 to 07/20/2018 upstream of the outfall.
F. Average effluent discharge rate: 5.1 MGD **Maximum effluent discharge rate:** 12.75 MGD
(annual average design flow) (peak daily design flow)
G. Effluent Substance Concentration: 1-day P99 = 682 mg/L ☒ Measured ☐ Estimated
4-day P99 = 570 mg/L ☐ Default ☐ Unknown
30-day P99 = 506 mg/L
Average all data = 472 mg/L

If measured or estimated, what was the basis? Include Citation.

Effluent chloride data collected for four consecutive days once per month from November 2014 to March 2019.

J. Type of HAC: ☐ Type 1: HAC reflects waterbody/receiving water conditions
☐ Type 2: HAC reflects achievable effluent conditions
☒ Type 3: HAC reflects current effluent conditions

<p>K. Statement of HAC: The Department has determined the highest attainable condition of the receiving water is achieved through the application of the variance limit in the permit, combined with a permit requirement that the permittee implement its Chloride SRM plan. Thus, the HAC at commencement of this variance is 511 mg/L (December-April) and 500 mg/L (May- November), which reflects the greatest chloride reduction achievable with the current treatment processes, in conjunction with the implementation of the permittee's Chloride SRM plan. The current effluent condition is reflective of on-site optimization measures that have already occurred. This HAC determination is based on the economic feasibility of available compliance options for the Village of Sussex at this time (see Economic Section below). The permittee may seek to renew this variance in the subsequent reissuance of this permit; the Department will reevaluate the HAC in its review of such a request. A subsequent HAC cannot be defined as less stringent than this HAC.</p>
<p>L. Variance Limit: December-April: 511 mg/L, May-November: 500 mg/L</p>
<p>M. Level currently achievable (LCA): 570 mg/L, 4-day P99 of all data from November 2014 to March 2019.</p>
<p>N. What data were used to calculate the LCA, and how was the LCA derived? (<i>Immediate compliance with LCA is required.</i>) Data from the current permit term suggests the LCA has increased from the (current/proposed) variance limits as shown in K and L above. See below for basis of the variance limit.</p>
<p>O. Explain the basis used to determine the variance limit (which must be \leq LCA). Include citation. Typically, the 4-day P99 of effluent data is used as the variance interim limit. However, the calculated 4-day P99's for December – April and May – November from 2014 – 2019 are greater than the current variance limits for these time periods which were calculated based on older data. However, it would be counterproductive to increase the variance limit in the proposed permit, and the facility is usually in compliance with the existing interim limits, so they are retained in the proposed permit. With increased emphasis on source reduction measures and meeting the highest attainable condition, it is expected that Sussex will be able to more consistently comply with the proposed variance limits of 511 mg/L from December through April and 500 mg/L from May through November.</p> <p>Chapter NR 106, Subchapter IV, Wis. Adm. Code, allows for a variance; the imposition of a less restrictive interim limit; a compliance schedule that stresses source reduction and public education; and allowance for a target value or limit to be a goal for reduction.</p> <p><i>{Ex. The variance limit = 4 Day P99. The limit is established in accordance with s. 283.15 (5), Wis. Stats. and ch. NR 106 Subchapter II, Wis. Adm. Code.}</i></p>
<p>P. Select all factors applicable as the basis for the variance provided <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 under 40 CFR 131.10(g). Summarize justification below:</p> <p>The use of a reverse osmosis system was evaluated. The cost of the reverse osmosis treatment system was estimated to result in an average that would be about 5.65% of the MHI. Installing centralized lime softening on the current municipal water supply system was also evaluated, and the estimated cost of doing so would be about 13.01% of the MHI. The cost estimates are in the range in which the application of either treatment would be expected to result in substantial and widespread economic and social impacts to the community. Without a variance, meeting the water quality-based effluent limit of 396 mg/L would result in substantial and widespread economic and social impacts.</p>
<p>Section III: Location Information</p>
<p>A. Counties in which water quality is potentially impacted: <u>Waukesha and Racine County</u></p>
<p>B. Receiving waterbody at discharge point: <u>Spring Creek (also known as Sussex Creek)</u></p>
<p>C. Flows into which stream/river? <u>Fox (IL) River</u> How many miles downstream? <u>~ 7</u></p>
<p>D. Coordinates of discharge point (UTM or Lat/Long): Lat: 43.12409° N, Long: 88.21785° W</p>
<p>E. What is the distance from the point of discharge to the point downstream where the concentration of the substance falls to less than or equal to the chronic criterion of the substance for aquatic life protection? The distance is conservatively estimated as 30 miles at 7-Q₁₀ conditions, and accounts for the discharges from POTWs in Sussex, Brookfield (~11 miles downstream), and the City of Waukesha (~16 miles downstream). This estimate is based on available 7-Q₁₀ data at several locations along the Fox (IL) River, and flow-weighted discharge concentrations.</p>

<p>Note – available in-stream data collected by Brookfield WWTF, which is located approximately 11 miles downstream from the Sussex outfall to Spring (Sussex) Creek, shows that the Fox (IL) River in this area is meeting the weekly average chloride water quality criteria of 395 mg/L. The average chloride concentration measured just upstream from Brookfield’s outfall is 213 mg/L. This location includes chloride inputs from the Sussex outfall.</p>												
<p>F. Provide the equation used to calculate that distance <i>(Include definitions of all variables, identify the values used for the clarification, and include citation):</i> (interim limit in mg/L x effluent design flow in cfs) + (background concentration mg/L x background stream flow in cfs) / (effluent design flow in cfs + background stream flow in cfs) = ≤ 395 mg/L.</p> <p>Sussex Inputs included; proposed interim limit = 511 mg/L, annual average design flow = 5.1 MGD, and Brookfield inputs included; existing interim limit = 620 mg/L, annual average design flow = 12.5 MGD, and Waukesha inputs included; existing interim limit = 690 mg/L, annual average design flow = 14.0 MGD, and 7-Q₁₀ data from the Fox River at multiple locations; annual 7-Q₁₀ = 2.2 cfs at Brookfield, annual 7Q₁₀ = 8.0 cfs at Waukesha, and annual 7-Q₁₀ = 26 cfs just downstream from confluence with Honey Creek (compliance point). These 7-Q₁₀ values have specifically been calculated by USGS to exclude “baseflow” from upstream POTWs.</p>												
<p>G. What are the designated uses associated with the direct receiving waterbody, and the designated uses for any downstream waterbodies until the water quality standard is met? Spring (Sussex) Creek is classified as a warm water sport fish community and is not used for public water supply. The Fox (IL) River is classified as a warm water sport fish community and is not used for public water supply.</p>												
<p>H. Identify all other variance permittees for the same substance which discharge to the same stream, river, or waterbody in a location where the effects of the combined variances would have an additive effect on the waterbody:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 20%;">Permit Number</th> <th style="width: 30%;">Facility Name</th> <th style="width: 30%;">Facility Location</th> <th style="width: 20%;">Variance Limit [mg/L]</th> </tr> <tr> <td>WI-0023469-09-0</td> <td>City of Brookfield</td> <td>Brookfield, WI</td> <td>620 mg/L (Dec-April) 590 mg/L (May-Nov)</td> </tr> <tr> <td>WI-0029971-08-0</td> <td>City of Waukesha</td> <td>Waukesha, WI</td> <td>690 mg/L year-round</td> </tr> </table> <p>NOTE; in-stream data from Fox River just upstream and downstream from both the City of Brookfield and Waukesha POTWs demonstrates that the chloride concentration is well below the 396 mg/L criteria.</p>	Permit Number	Facility Name	Facility Location	Variance Limit [mg/L]	WI-0023469-09-0	City of Brookfield	Brookfield, WI	620 mg/L (Dec-April) 590 mg/L (May-Nov)	WI-0029971-08-0	City of Waukesha	Waukesha, WI	690 mg/L year-round
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WI-0029971-08-0	City of Waukesha	Waukesha, WI	690 mg/L year-round									
<p>I. Please attach a map, photographs, or a simple schematic showing the location of the discharge point as well as all variances for the substance currently draining to this waterbody on a separate sheet</p>												
<p>J. Is the receiving waterbody on the CWA 303(d) list? If yes, please list <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown the impairments below.</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <th style="width: 30%;">River Mile</th> <th style="width: 30%;">Pollutant</th> <th style="width: 40%;">Impairment</th> </tr> <tr> <td>0-6.57 of Spring (Sussex) Creek</td> <td>Total Phosphorus</td> <td>Low Dissolved Oxygen</td> </tr> <tr> <td>113-171 of Fox (IL) River</td> <td>Total Phosphorus</td> <td>Degraded Biological Community</td> </tr> <tr> <td>113-171 of Fox (IL) River</td> <td>PCB</td> <td>Contaminated Fish Tissue</td> </tr> </table>	River Mile	Pollutant	Impairment	0-6.57 of Spring (Sussex) Creek	Total Phosphorus	Low Dissolved Oxygen	113-171 of Fox (IL) River	Total Phosphorus	Degraded Biological Community	113-171 of Fox (IL) River	PCB	Contaminated Fish Tissue
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113-171 of Fox (IL) River	PCB	Contaminated Fish Tissue										
<p>K. Please list any contributors to the POTW in the following categories:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 40%;">Food processors (cheese, vegetables, meat, pickles, soy sauce, etc.)</td> <td>None</td> </tr> <tr> <td>Metal Plating/Metal Finishing</td> <td>None</td> </tr> <tr> <td>Car Washes</td> <td>Hometown Super Wash, 7-Eleven car wash</td> </tr> <tr> <td>Municipal Maintenance Sheds (salt storage, truck washing, etc.)</td> <td>Public works garage, WPCF garage</td> </tr> <tr> <td>Laundromats</td> <td>Sussex Laundry</td> </tr> <tr> <td>Other presumed commercial or industrial chloride contributors to the POTW</td> <td>Apartment buildings, Hamilton School District, Quad Graphics, Nature’s Path Organic Cereal, Kohl’s Corporate Center, restaurants, hauled wastes.</td> </tr> </table>	Food processors (cheese, vegetables, meat, pickles, soy sauce, etc.)	None	Metal Plating/Metal Finishing	None	Car Washes	Hometown Super Wash, 7-Eleven car wash	Municipal Maintenance Sheds (salt storage, truck washing, etc.)	Public works garage, WPCF garage	Laundromats	Sussex Laundry	Other presumed commercial or industrial chloride contributors to the POTW	Apartment buildings, Hamilton School District, Quad Graphics, Nature’s Path Organic Cereal, Kohl’s Corporate Center, restaurants, hauled wastes.
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Metal Plating/Metal Finishing	None											
Car Washes	Hometown Super Wash, 7-Eleven car wash											
Municipal Maintenance Sheds (salt storage, truck washing, etc.)	Public works garage, WPCF garage											
Laundromats	Sussex Laundry											
Other presumed commercial or industrial chloride contributors to the POTW	Apartment buildings, Hamilton School District, Quad Graphics, Nature’s Path Organic Cereal, Kohl’s Corporate Center, restaurants, hauled wastes.											

- L. If the POTW does not have a DNR-approved pretreatment program, is a sewer use ordinance enacted to address the chloride contributions from the industrial and commercial users? If so, please describe.**
No DNR-approved pretreatment program due to lack of need per ch. NR 211, Wis. Adm. Code.

Village of Sussex Sewer Use Ordinance (SUO): A SUO for the Village of Sussex was amended (05/12/2015) to address excessive chloride contributions from light industrial/commercial users.

The amended SUO includes installation restrictions for all new homes; outside faucets or other faucets where softened water is not essential must be placed on unsoftened water. This language is also included in the Village's plumbing permit for softener replacements.

Satellite Communities SUOs:

Menomonee Falls: approved similar update to SUO on 10/19/2015

Town of Lisbon: approved similar update to SUO sometime in 2016

Village of Lannon: discussions ongoing, but no recent updates to SUO

Section IV: Pretreatment (complete this section only for POTWs with DNR-Approved Pretreatment Programs. See w:\Variances\Templates and Guidance\Pretreatment Programs.docx)

- A. Are there any industrial users contributing chloride to the POTW? If so, please list.**
N/A

- B. Are all industrial users in compliance with local pretreatment limits for chloride? If not, please include a list of industrial users that are not complying with local limits and include any relevant correspondence between the POTW and the industry (NOVs, industrial SRM updates and timeframe, etc)**
N/A

- C. When were local pretreatment limits for chloride last calculated?**
N/A

- D. Please provide information on specific SRM activities that will be implemented during the permit term to reduce the industry's discharge of the variance pollutant to the POTW**
N/A

Section V: Public Notice

- A. Has a public notice been given for this proposed variance?** ☐ Yes ☐ No
B. If yes, was a public hearing held as well? ☐ Yes ☐ No ☐ N/A
C. What type of notice was given?
☐ Notice of variance included in notice for permit ☐ Separate notice of variance
D. Date of public notice: _____ **Date of hearing:** _____
E. Were comments received from the public in regards to this notice or hearing? (If yes, see notice of final determination) ☐ Yes ☐ No

Section VI: Human Health

- A. Is the receiving water designated as a Public Water Supply?** ☐ Yes ☒ No
B. Applicable criteria affected by variance: No human health criteria for chloride
C. Identify any expected impacts that the variance may have upon human health, and include any citations:
None

Section VII: Aquatic Life and Environmental Impact

- A. Aquatic life use designation of receiving water:** Warm water sport fish community
B. Applicable criteria affected by variance: Chronic toxicity criteria: 395 mg/L
C. Identify any environmental impacts to aquatic life expected to occur with this variance, and include any citations:
The proposed interim limits of 511 mg/L from December – April and 500 mg/L from May – November both result in an instream concentration of around 500 mg/L at the edge of the regulatory mixing zone (mixed with

<p>25 % of 7-Q₁₀ and background concentration of 94 mg/L). These edge of mixing zone concentrations only exceed the genus mean chronic value for one species; the Ceriodaphnia (417 mg/L).</p>
<p>D. List any Endangered or Threatened species known or likely to occur within the affected area, and include any citations:</p> <p>None that would affect the water quality criterion as the chronic toxicity criterion for chloride is more stringent than all genera mean chronic values for organisms with chloride toxicity data. As a result, no endangered species with data would need more protection than already provided by the existing criterion.</p> <p>Citation: U.S. Fish & Wildlife Service – Environmental Conservation Online System (http://www.fws.gov/endangered/) and National Heritage Index (http://dnr.wi.gov/topic/nhi/)</p>
<p>Section VIII: Economic Impact and Feasibility</p>
<p>A. Describe the permittee's current pollutant control technology in the treatment process:</p> <p>Sussex currently does not have any treatment capability for chloride.</p>
<p>B. What modifications would be necessary to comply with the current limits? Include any citations.</p> <p>Upgrades to the WWTF to install reverse osmosis (RO) near the end of the treatment process would be needed to comply with the WQBEL of 396 mg/L. Centralized or regional lime softening is not a practical alternative to comply with the WQBEL due to excessive relative cost associated with centralizing well water from multiple wells or providing softening treatment at each well.</p>
<p>C. How long would it take to implement these changes?</p> <p>Unclear. Neither modification is economically feasible.</p>
<p>D. Estimate the capital cost (Citation): \$5,737,500</p>
<p>E. Estimate additional O & M cost (Citation): \$1,861,500</p>
<p>F. Estimate the impact of treatment on the effluent substance concentration, and include any citations:</p> <p>Due to the nature of reverse osmosis treatment, the effluent concentration would presumably be reduced to 0 mg/L. However, there would be a stronger concentration in this new discharge of reject water than the present discharge.</p> <p>To meet the final water quality-based effluent limit of 396 mg/L, there would need to be a 20 - 25 % reduction from the proposed interim limit. It is expected the facility can eventually reach this reduction with SRMs.</p>
<p>G. Identify any expected environmental impacts that would result from further treatment, and include any citations:</p> <p>End-of-pipe RO wastewater treatment technology for chloride produces concentrated brine that can be as much or more of an environmental liability than the untreated effluent. Since the concentrated brine cannot be further treated, the only recourse for the disposal of the brine is transfer to another community, which is often not feasible. Appropriate chloride source reduction activities are preferable environmentally to effluent end-of-pipe treatment in most cases, since the end product of treatment (production of a concentrated brine) does not remove the load of chloride from the environment. There would be some impacts based on disposal of brine from RO. These include air pollution impacts from trucking brine and increased chloride impacts at the point where brine is discharged.</p>
<p>H. Is it technically and economically feasible for this permittee to modify the treatment process to reduce the level of the substance in the discharge? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown</p> <p>Reverse Osmosis treatment of the Village of Sussex WWTF effluent to meet the WQBEL is technically feasible. However, it is not economically feasible. See DNR variance application and screening tool for costs of reverse osmosis. Use of reverse osmosis at the WWTF was evaluated; the resulting total cost for sewer user rates was estimated to result in an average cost to households that would be 5.65% of the MHI. An increase of this magnitude would cause substantial and wide spread adverse social and economic impacts the area where the discharge is located.</p> <p>Lime softening treatment of the Village of Sussex's water supply – in lieu of ion-exchange - is technically feasible and would potentially enable the WWTF effluent to meet the chloride WQBEL. However, lime softening is not economically feasible. See the Chloride Variance Economic Eligibility Tool (Lime Softening) screening tool for costs of lime softening. Use of municipal lime softening was evaluated; the resulting cost for sewer user rates was estimated to result in an average cost to households that would be 13.01% of the MHI. An</p>

increase of this magnitude would cause substantial and wide spread adverse social and economic impacts the area where the discharge is located.
I. If treatment is possible, is it possible to comply with the limits on the substance? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
J. If yes, what prevents this from being done? Include any citations. End of pipe Reverse Osmosis (RO) treatment could reduce effluent chloride concentrations to chronic toxicity criterion. However, attaining the applicable water quality standards specified in chs. NR 102 to 105, Wis. Adm. Code, may cause substantial and widespread adverse social and economic impacts in the community where the discharger is located.
K. List any alternatives to current practices that have been considered, and why they have been rejected as a course of action, including any citations: Reverse Osmosis (RO)-not economically feasible (5.65% of MHI) Regional Lime Softening Treatment- not economically feasible (13.01% of MHI)
Section IX: Compliance with Water Quality Standards
A. Describe all activities that have been, and are being, conducted to reduce the discharge of the substance into the receiving stream. This may include existing treatments and controls, consumer education, promising centralized or remote treatment technologies, planned research, etc. Include any citations. Sussex focuses on two main contributors; water softeners and road salting. Regarding water softeners; <ul style="list-style-type: none"> The Village of Sussex has made a continuous effort to educate the community as well as the contributing satellite communities about the possibility to reduce the amount of chloride entering the sewer system through water softener optimization: https://www.villagesussex.org/vertical/sites/%7B1FD3B636-3BF9-4496-900E-EAA7FFADF5E8%7D/uploads/Water_Softener-Chlorides.pdf The Village of Sussex sends out an article on water softener optimization in the Sussex Courier, which is a semi-annual newsletter that is sent out to all homeowners. The Village of Sussex has amended its sewer use ordinance, and has successfully encouraged satellite communities to do the same (see section III – L and final chloride SRM report for more information) Regarding road salting; <ul style="list-style-type: none"> Sussex purchased a brine making unit in 2015 and has converted or added the ability for the DPW trucks to use brine where feasible which helps significantly reduce the amount of total road salting needed per lane mile. These efforts have not yet made a significant impact (reduction) on the chloride concentration in the WWTF effluent but are expected to have a significant positive impact over time due to the reduction of annual application rates. More efficient road salting operations will lead to less direct runoff to both surface water and groundwater in the area, and evidence provided in the final report suggests that use of brine over traditional granular road salting will probably lead to some reductions in the WWTF effluent chloride concentrations. Further discussion can be found in the final chloride progress report submitted in April 2019.
1. Describe all actions that the permit requires the permittee to complete during the variance period to ensure reasonable progress towards attainment of the water quality standard. Include any citations. The permit contains a variance to the water quality-based effluent limit (WQBEL) for chloride granted in accordance with s. NR 106.83(2), Wis. Adm. Code. As conditions of this variance, the permittee shall (a) maintain effluent quality at or below the interim effluent limitation specified in the permit, (b) implement the chloride source reduction measures specified below, (c) follow the approved Source Reduction Plan and (d) perform the actions listed in the compliance schedule. (See the permit Schedules section): Chloride Source Reduction Measures: <ol style="list-style-type: none"> Continue to provide education to residents and businesses on the effects of excessive chloride use and the role of water softeners and road salt application by providing information at the Village Hall,

satellite community kiosks, village website, and in the village newsletter. Include letters with utility mailings to encourage reduction of water softener discharges.

2. Bring awareness to residents on the effects of excessive chloride use by providing an information booth at National Night Out event. Evaluate success of event for future improvements.
3. Continue to educate village staff on responsible salt and brine use, efficient application, and cleanup procedures.
4. Continue to sample and monitor commercial, industrial, and hauled wastes for high chloride discharges, including low and high-volume water users.
5. Continue to take actions that prevent chloride from reaching the sewer system. Find and correct inflow and infiltration issues by lining Silver Spring and Main Street pipe, repairing manholes and following CMOM guidelines.
6. Continue brine application for anti-icing during winter road conditions.
7. Identify proper placement for snow piles to prevent snowmelt and runoff from draining to the sewer system.
8. Gather data on water softener use in the Village, including number of users and type (time or Demand Initiated Regeneration). Update the "Cross Connection Survey" and gather data by issuing annually.
9. Contact the Village's largest water users, including: public schools, apartment buildings, industries, and any new users. Emphasize water softener regeneration optimization, responsible use of softened water connections, or installation of brine reclamation systems.
10. Explore adoption of a local regulation in the Village of Lannon to require bypass of water softener systems where softening is not essential, such as outside hose-bib use for landscape irrigation. Contact the Village of Lannon, provide examples, and advance discussions as needed.
11. Explore adoption of a local regulation to require Demand Initiated Regeneration (DIR) water softeners for new installations and replacements and present to Village Board. Discuss potential adoption of regulations with satellite communities.
12. Develop a residential water softener inspection and optimization program. Include incentives for residents, encourage participation of water softener companies and contractors, and notify residents of the new program. Evaluate program successes for future program improvements.

Section X: Compliance with Previous Permit (*Variance Reissuances Only*)

A. Date of previous submittal: 3-25-2014	Date of EPA Approval: 7-29-2014
B. Previous Permit #: WI-0020559-07-0	Previous WQSTS #: (EPA USE ONLY)
C. Effluent substance concentration: Peak daily = 777 mg/L; peak weekly average = 645 mg/L	Variance Limit: Dec-April = 511 mg/L; May-Nov = 500 mg/L

D. Target Value(s): 420 mg/L, as a weekly average **Achieved?** ☐ Yes ☒ No ☐ Partial

E. For renewals, list previous steps that were to be completed. Show whether these steps have been completed in compliance with the terms of the previous variance permit. Attach additional sheets if necessary.

Condition of Previous Variance	Compliance
Amend Sussex's sewer use ordinance to include, for all new homes, installation restrictions so that outside	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

faucets or other faucets where softened water is not essential, be placed on unsoftened water. Include this restriction notice in the information packets provided for new home builders. Evaluate the imposition of the restrictions for existing homes that are replacing softeners. Request voluntary support from local water plumbers and licensed installers to implement the installation restrictions and include a language in the Village's softener replacement permit to recommend the restrictions. Include discussions on these efforts in the required annual chloride reports	
Request all satellite communities - Lannon, Menomonee Falls, Lisbon SD, Town of Lisbon - to impose the above installation restrictions for outside faucets or other faucets where softened water is not essential.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Follow up on the investigation of chloride sources from industrial, commercial, hauled wastes and large water users. Extend this investigation to all satellite communities. Characterize and quantify chloride from identified sources. Require identified high chloride industrial and commercial sources (e.g. Quad Graphics) to evaluate their processes with regard to reducing chloride. Include discussions on these efforts and follow-up actions in submitted chloride reports.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Identify areas in the collection system with high infiltration and inflow and implement projects to address I/I problems.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Continue education of homeowners on impact of chloride from residential softeners and on options available for increasing softener efficiency.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No